

Dallas/Fort Worth Role Playing Game Society: Information Organization System

1. Project description

1.1. Collection and information objects

The Dallas/Fort Worth Role Playing Game Society (D/FW RPGS) collectively own a growing body of role playing game (RPG) books, and the society leadership decided to create a library. The collection purpose is to make a wider variety of RPG books available to the society membership. Society members donate material no longer in print while society dues fund the purchase of newer material, growing the collection to an estimated 1600 books.

The RPG book collection occupies the book shelves at the D/FW RPGS headquarters, a red brick building just south of I-20 in Grand Prairie. Society members complain about the clumsy process of finding material within the collection, and the D/FW RPGS leadership wants to create a searchable database and an information organization scheme to impose order upon the chaotic state of the collection.

1.2. Users' demographics and knowledge

The D/FW RPGS connects over 600 members active in the role playing game hobby. Members come from across the greater Dallas/Fort Worth area, and the core membership ranges in age from 18-55. Males outnumber females at a ratio of 7/2 and education levels range from high school diplomas to some members possessing master's degrees.

Society members demonstrate high to moderate general knowledge due to education levels, and a significant number of the members regularly attempt to impress each other with varying kinds of trivia. Domain knowledge ranges from high to moderate as many society members have participated in the hobby for 5 years or longer, and some members have participated since 1974, when Gary Gygax first published Dungeons and Dragons.

System knowledge ranges from high to moderate. Society members tend to play computer games, surf the internet, and communicate with each other using e-mail and the forums on the D/FW RPGS homepage. The society contains 50 to 70 computer programmers, many of whom have created their own programs to create characters for games and simulate the rolling of dice.

The information seeking behavior among society members is distinctly moderate to low. Members tend to ask for game books by title, genre, or subject without getting much more detailed. A member might ask for an adventure (subject) for the Star War Role Playing Game, but questions rarely grow more specific.

1.3. Users' problems and questions

Society members will use the RPG book collection to find out-of-print game material, try newer material before buying for their own use, and find material not usually available at their local retailers.

One society member asked the following question while looking through the shelves at the D/FW RPGS headquarters.

User question 1: I want to start a weekly *Warhammer Fantasy Role Play* game with some friends, but work keeps me too busy to write my own material. I need a published adventure with several parts and a couple shorter adventures.

Object attributes: Game, Subject

Desired precision: Moderate

Desired recall: Low

The patron is asking for three adventures for a specific game. He doesn't want too many to start with because he will have to read them before he runs them at the game table, but he knows exactly what game he wants to run for his friends. He can find the adventure with several parts when he pulls the adventures down from the shelves.

User question 2: I need a science fiction RPG other than Star Wars. I need the core rules and three or four rules supplements.

Object attributes: Genre, Subject

Desired precision: Moderate

Desired recall: Moderate

Here the patron asks for a game by genre, but he doesn't use a title other than to state a game he doesn't want to retrieve from the shelf. He asks for the core rule books for the game and a hand full of supporting material. The patron will probably want to compare records from the database before making a selection of what to pull down from the shelf.

User question 3: I need an RPG called *Legend of the Burning Sands*. I only need the core rulebook.

Object attributes: Title, Game, Subject

Desired precision: High

Desired recall: Low

This patron asks for specific game by name, but he states he only wants the rule book central to the game. He is asking by title of the game, and the subject of the book he desires.

User question 4: I need all the clan books for *Legend of the Five Rings*. There are eight clans in the game. So, there should be about eight books.

Object attributes: Game, Subject,

Desired precision: High

Desired recall: Moderate

The fourth patron asks for a specific game, but he also asks for specific material from the game. His question is precise because he knows exactly what material he is searching for, but he is asking for more than three books.

Game is an important attribute because patrons are searching for material for the games they enjoy playing. Patrons look for new games by the genre of the game, such as science fiction or fantasy. In this case, the subject attribute is used to describe the purpose of the game material asked for. Subject covers whether a book is core rules, an adventure, setting material, or rules supplement.

2. Representation of information objects

2.1. Entity level

Entity describes an object within a collection, and for the RPGS collection, entity refers to game books. **Entity level** describes the entity a record represents.

The entity level in the D/FW RPGS library database is one book. That means one record in the database will represent one book on the shelves, and this means a patron should be able to find a book that corresponds to any record in the database. When a patron cannot find a particular book, it should only be because another patron has checked out that book.

2.2. Metadata elements and semantics

Metadata is a way of describing information. If you describe a book to a friend according to the content, you have assigned metadata to a book. Metadata elements are specific terms or characteristics from a set of information that assist in describing the information (i.e. format or subject). **Semantics** refers to how a person chooses to define those characteristics used for metadata elements.

Since the collection focuses on books, the objects in the collection have certain attributes a patron can use to identify the book. Those attributes translate into **metadata elements** or specific features that help to differentiate one book in the collection from another. If all the books in the collection are grouped together by the game they go with and then placed in alphabetical order by the title, two Metadata elements have helped inform how the collection is organized.

Metadata elements help a patron in the four tasks involved in retrieving material from the shelves of a collection. **Finding** refers to the patron going to the collection database with a need for particular information and attempting to pull up database records that meet that information need. **Identifying** refers to the patron browsing through records produced from the search and determining if the book described by a record meets the information need. **Selecting** refers to the patron picking the books most relevant to the information need. **Obtaining** refers to the user going to the shelf and pulling down the book or books chosen during the previous step.

The metadata elements title, genre, purpose, and game assist with the finding task because these elements translate into searchable fields in the database. A user might consider any one of the game, genre, title, page count, publisher, author, or purpose fields when identifying and selecting material from the collection. Game, edition, and title assist with the obtaining of a game book because these elements form part of the classification scheme for the book in the collection.

The term **semantics** refers to how we define the Metadata elements used to describe the collection in the database. *The Players Handbook* for the game *Dungeons and Dragons* makes a good example of how a book on the shelf translates into a set of Metadata elements referring to the book in a database record. The name *The Player's Handbook* refers to a specific book which a patron would use to identify the book. Most collections refer to the name of a book as the Title attribute, and there is no good reason to rename the attribute for the RPGS collection.

A set of words on the cover identifies the purpose of the book as "the role-playing game core rules". If a player wanted the basic rules for *Dungeons and Dragons*, they would pull *The Player's Handbook* down from the shelf, and for lack of a more specific term, a record in the database will refer to the purpose of a particular game book as the Subject. In the case of *The Player's Handbook*, the Subject is core rules.

The game *The Player's Handbook* is associated with is *Dungeons and Dragons*, and since collection patrons often ask for a game by the name, Game will be an important Metadata element. Game refers to the particular game that a book is associated with.

Appendix A will describe the other Metadata elements and the semantics that define those Metadata elements.

2.3. Record structure and specifications

The D/FW RPGS database will contain 8 fields to describe the books found on the shelves. Each Metadata element translates into a single field in the database, but the database will include two additional fields containing information not available to the database user: RecordID and RecordDate. These two fields will track the date and assign a record number to the database and allow the database manager to identify what order each record was created in and what date the record entered the database.

In database design, four forms of technical specification describe how information goes into each field of the database. The four kinds of specification are: field type, indexing, entry validation, and content validation.

Field type describes the information a particular field. A database designer can specify whether the information in a field will appear as text, a number, a date, an image, or a link. The database designer can set the database to automatically generate a number or date, such as the case with the RecordID or the RecordDate fields, and the designer can set the database to compute a number or date from the field based on information found in other fields. All the fields used in the RPGS database are text fields except the Page Count field, the RecordID, field, and the RecordDate field. The RecordDate is an autodate field while the RecordID field is an autonumber field, and the Page Count field is a number field.

Indexing makes a field searchable and a database designer can either index a field with word indexing, term indexing, or both. Term indexing requires a user to input specific search terms to query under the indexed field, and the database designer needs to create a list of terms used in the database and make the terms available to the user. A thesaurus connecting related terms to searchable terms can also aid the user. Word indexing means the database will attempt to match words in the query to words in a record. In the RPGS collection database, the fields Author, Game, Genre, and Title are word indexed while the Subject field is term indexed.

Entry validation controls the information that goes into a particular field. The database designer can make a particular field required, which means a record cannot go into the database unless the individual creating a record puts information into the required field. The designer may also require a unique entry in a field, which means no other records, may match the exact information in a field. A Title field makes a good example of a field a designer may set for unique entry only. The designer can also set a field to allow only single entry. Again, Title makes a good example where the designer might make this decision as books usually don't carry more than one title. In the RPGS database, the fields Author, Edition, Game, Genre, Page Count, Publisher, Purpose, and Title are required. The fields Edition, Game, Page Count, Publisher and Title are set to single entry only.

Content Validation controls how the information appears in a field. No content validation allows someone creating a record to input whatever they like in a field. Setting a field to require a range allows the designer to control the range of numbers someone can input in a field, and a mask sets the number of characters allowed in a field. A validation list forces the user to choose an entry from a list of term usable within the database. In the RPGS database, the fields Game, Genre, Publisher and Subject use a validation list, but no other form of content validation is used.

See Appendix B.

2.4. Record content and input rules

The chief source of information for each record in the database is the book a record will represent. Someone creating a record can determine the author, title and similar information with a quick glance at the cover or the title page, and only unusual cases would require the record creating to look to a different source of information.

Inputting information for the edition field and the game field prove problematic where certain games are concerned. Older games like Dungeons and Dragons have gone through multiple editions, and sometimes the edition of a game might have a different title (i.e. Advanced Dungeons and Dragons Second Edition Revised and Dungeons and Dragons Third Edition). To solve this problem, all game names will go into the database as they appear on the cover of the game book, but the edition names will be typed out as text rather than numbers (i.e. Third Edition Revised). So that all records associated with a particular game are grouped together, words added onto the beginning of a game title will follow the primary game name and a comma (i.e. Dungeons and Dragons, Advanced).

See Appendix C.

3. Access and authority control

Authority control, a set of rules governing how information goes into the database, will allow the RPGS to maintain an organized collection and keep records consistent. Without authority control, indexers lack a central point of reference and must rely on their own discretion. Different indexers make different choices, and most of the benefit from creating a database gets lost.

The Game, Genre, Publisher, and Subject fields are under a validation list with in the database. Genre and Subject could contain any number of potential terms, and consistency among records becomes easier when indexers must use a common language. The Game field plays an important role in the database, which means it helps to keep entries in this field consistent among various records. A game may have been published under more than one name, such Dungeons and Dragons once carrying the name Advanced Dungeons and Dragons, but books connected to the same intellectual property should occupy the same area on the shelves.

The name authority file also relates to keeping indexers using the same language when they create records. One indexer might abbreviate the company name Wizards of the Coast as WOTC, and another indexer might not choose to enter an abbreviation at all. The same problem crops up when you have *Dungeons and Dragons*, *Advanced Dungeons and Dragons*, and *D&D* as choices to describe the same game. If the authority file states that all of book associated with Dungeons and Dragons go under the name *Dungeons and Dragons*, all indexers should make the same choice when creating a record for a *Dungeons and Dragons* book.

The thesaurus defines terms as they are used in the database. A dictionary might contain a different definition for the terms, but the RPGS committee for organizing the RPG collection made some choices about how to define terms that might become problematic if left to each indexer. The field Genre in particular needs a thesaurus to keep indexers using the preferred terms when creating records.

4. Representation of information content

4.1. Subject access

Subject Access describes a users desire to search for material based upon the content rather than the physical properties of the material with in a collection. When a user wants to access a book based on content, the user wants to know what the book is about.

The Genre field describes the fictitious context associated with the material in a particular game book. The content inside a *Dungeons and Dragons* book falls under the fantasy genre because the game describes wizards, magic swords, dragons, and other imaginary elements associated with fantasy. Another game, *Vampire the Requiem* falls under the horror genre because players of the game portray vampires struggling to make sense of their undead existence.

The Purpose field describes the primary purpose of the content in a particular game book. The *Player's Handbook* for the game *Dungeons and Dragons* lays out the basic rules needed to play the game, and so, *The Player's Handbook* falls under the subject term Core Rules. The rule book for the game *Legend of the Five Rings* gives a brief description of the setting the game takes place in, but the rulebook falls under *Core Rules* because the book provides the basic rules of the game. Another book, *Emerald Empire* provides optional rules for the game, but since the primary purpose of the book is to provide an in depth look at the setting of the game, the book falls under Setting.

4.2. Thesaurus structure

Database fields that refer to physical aspects of the book don't need much authority control. The indexer only needs to know the appropriate format for those fields and follow the input rules. Subject access fields, fields describing content, need more precise rules. Without a clear control vocabulary, indexers must rely on own judgment to describe the content of a book, and the organization scheme governing a collection falls into chaos.

Of the two subject access fields in the RPGS database, the Genre field is the most complex. This field could grow to include a vast number of terms, and without precise control vocabulary, indexers will invent their own terms. Fiction genres include mystery, romance, fantasy, historical fiction, suspense, and horror, and book publishers divide these genres into subgenres. The fantasy genre contains alternate history, dark fantasy, heroic fantasy, high fantasy, medieval fantasy, modern fantasy, romantic fantasy, science fantasy, sword and sorcery, and urban fantasy. Roleplaying games cover many of the same genres and leads to the need for precise control vocabulary.

Specificity refers to how precise the control vocabulary is. The control vocabulary for the genre domain requires a thesaurus with high specificity as this will allow searches in the genre field to produce results with high precision and low recall. A more precise thesaurus means subject field searches produce results more relevant to the terms a user searches for.

Exhaustivity refers to how in depth an indexer goes when describing the content of a book. The RPGS database errs on the side of summarization. An indexer will select a few terms that describe the main themes of a particular book, and this moderate level of exhaustivity will produce a precision between moderate and high and a recall between moderate to low.

See Appendix D

4.3. Classification scheme

The classification system in the RPGS collection should allow members of the RPGS to go from finding a record in the database to finding the physical book on the shelf. Someone archiving a collection can take two approaches to classification: faceted or hierarchical. A hierarchical approach organizes subjects into a hierarchy developed before the creation of a database, and a faceted approach involves the creation of a list of subjects before the creation of the database without arranging those subjects into a hierarchy.

The RPGS collection will use a faceted approach because the collection hasn't grown large enough to need a hierarchy, and a hierarchical approach will make organizing the collection more complicated than is needs to be.

The fields used to assign a call number are: Game, Edition, and Title. Game goes first to ensure all the books for a game get shelved together. Following Game with Edition groups all the books for a particular edition of a game with multiple editions together, and a short abbreviation of the title provides each book with a unique call number. Genre will not help create a unique call number more than one game can fall under the same genre, and subject will not work because more than one book for a game can have the same subject.

The Player's Handbook for the fourth edition of the game Dungeons and Dragons would receive the call number: D&D 4 PHB. D&D comes from an abbreviation of the game title while 4 represents the edition of the game and the PHB comes from the letters in the title of the book. The core book for the revised third edition of Legend of the Five Rings would receive the call number: L5R 3r RPG. The r next to the 3 stands for revised, and the RPG is put into place because the core book doesn't have a title separate from the name of the game.

See Appendix E

Appendix A. Metadata elements and semantics

No.	Element name	Semantics
1	Author	The writer or writers that produced a particular book
2	Edition	The numbered edition of a game a book is associated with, such <i>Dungeons and Dragons</i> 4th edition.
3	Game	The specific game a particular book is associated with
4	Genre	The field of a game is set in, such as science fiction or fantasy
5	Page Count	How many pages a book contains
6	Publisher	The company responsible for producing a particular game book
7	Purpose	The purpose of a book, such as a rules supplement or an adventure
8	Title	The name used to identify a book
9	Subject	
	Classification	

Appendix B. Record structure and specifications

1. Record structure specifications

No.	Field name	Field type	Indexing	Entry validation	Content validation
1	RecordID	Autonumber		—	—
2	RecordDate	Autodate		—	—
3	Author	Text	Word	Required	---
4	Edition	Text	—	Required, Single Entry	---
5	Game	Text	Word	Required, Single Entry Only	Validation List
6	Genre	Text	Word	Required,	Validation List
7	Page Count	Number	----	Required, Single Entry	---
8	Publisher	Text	----	Required, Single Entry	Validation List
9	Purpose	Text	Term	Required	Validation List
10	Title	Text	Word	Required, Single Entry	—
	Classification				

2. Textbase structure

Game
 Title
 Edition
 Author
 Purpose
 Genre
 Publisher
 Page Count
 Call Number

Appendix C. Record content and input rules

Field Name: RecordID

Semantics: This field describes is the ID number assigned to a record.

Chief Source of Information: The field is automatically generated when a record is created.

Input Rules: The database assigns a number to the record when it is created.

Example : Record 1

Field Name: Record Date

Semantics: This field describes when a record is created.

Chief Source of Information: This field is automatically generated when a record is created.

Input Rules: None

Example: 1

Field Name: Game

Semantics: This field describes what game a book is for.

Chief Source of Information: Book cover

Input Rules: 1. Select the game the book is for from the validation list.

2. If the game does not appear in the validation list, contact the database manager.

3. The database manager will need to input the new game in the database list before the record can be completed.

Example: Dungeons & Dragons

Field Name: Title

Semantics: This field describes the Title of an individual game book.

Chief Source of Information: Book cover.

Input Rules: 1. Type the title of the book into the field as it appears on the cover of the book.

Example: The Player's Handbook

Field Name: Edition

Semantics: This describes what version of game a book is for.

Chief Source of Information: Book cover or title page

Input Rules: 1. Identify the edition of the game.

2. Regardless of how the edition information appears on the cover or title page, type the information into the field as text without numbers (i. e.-Third Edition Revised).

Example Third Edition Revised

Field Name: Author

Semantics: This field describes the writers of particular game book.

Chief Source of Information: Book cover or title page.

Input Rules: 1. Write the authors names into the field as first name followed by the last name.

2. Separate each name with a comma.

3. Stop inserting names into the field once the field contains five names.

Example Chris Pramas

Field Name: Purpose

Semantics: This describes the purpose of a particular game book

Chief Source of Information: Game book

Input Rules: 1. Scan through the content of the book and write down terms that seem to describe the main purpose of the material in the book

2. Select a single term from the validation list that best describes the purpose of a game book. These terms come from the thesaurus created by the database manager

3. If none of the terms in the validation list seem to describe a game book, ask the database manager to create a new term or assign a term already in the thesaurus.

Example: Core Rules

Field Name: Genre

Semantics: This field describes the area of fiction a particular game book belongs to.

Chief Source of Information: Game book.

Input Rules: 1. Scan through the material in the game book. Pictures in the book

2. Select the term from the validation list that best describes what genre a game belongs to. The terms in the validation list come from the approved terms selected by the database manager.

3. If the validation list lacks an appropriate term from the validation list, contact the database manager about adding a new term to the validation list.

Example: Fantasy

Field Name: Publisher

Semantics: This field names the company that published a particular game book.

Chief Source of Information: Book cover or title

Input Rules: 1. Select the publisher name from the validation list.

2. If the publisher's name does not appear on the validation list, contact the database manager so that he may add the name of the publisher to the validation list.

Example Wizards of the Coast

Field Name: Page Count

Semantics: This field describes how many pages a game book contains.

Chief Source of Information: Game book

Input Rules: 1. Identify how many pages a particular game book contains and enter that number into the field.

Example 317

Appendix D. Sample thesaurus

Adventure Book

NT Adventure Anthology

Adventure Anthology

BT Adventure Book

Basic Rules

USE Core Rules

Campaign Setting

BT Setting Information

Class Guide

BT Rules Supplement

Core Rules

NT Game Master's Guide

NT Monster Book

NT Player's Guide

RT Basic Rules

UF Basic Rules

Equipment Guide

BT Rules Supplement

Faction Guide

BT Setting Information

Game Master's Guide

BT Core Rules

Monster Book

BT Core Rules

Player's Guide

BT Core Rules

Rules Supplement

NT Class Guide
NT Equipment Guide

Setting Information

NT Campaign Setting
NT Faction Guide

Appendix E. Classification scheme

1. Scheme

Game	Edition	Title
See Rule	See Rule	See Rule

2. Notation rules

Facet name: Game

Chief source of information: Refer to the cover of the book or the title page.

Notation rules: Use a three or four letter title to refer to the name of the game the book belongs.

Facet name: Edition

Chief source of information: Refer to the cover of the book or the title page.

Notation rules: Use a number corresponding to the appropriate edition of the game. If the term revised appears someplace in the name of the edition, place a lower case r after the number.

Facet name: Title

Chief source of information: Refer to the book or the title page.

Notation rules: Create a three or four letter abbreviation using the first letters of the important in the title. If the title is one word, use the first three letters from the title.

3. Rule for unique number

After the Game, Edition, and Title fields are used to create the first three parts of the call number, the Record ID number is added onto the end as a unique identifier. This ensures that every item in the collection has a unique call number to distinguish one record from the other within the database.

4. Example

The Player's Handbook for the fourth edition of the game Dungeons and Dragons would receive the call number: D&D 4 PHB 1. D&D comes from an abbreviation of the game title while 4 represents the edition of the game, PHB comes from the letters in the title of the book, and the one comes from the RecordID.

Appendix G. Sample records

Title: Disciples of the Dark Gods
Game: Dark Heresy
Edition: First Edition
Author: Alan Blight, John French, Owen Barnes
Purpose: Setting Information
Genre: Science Fiction
Publisher: Fantasy Flight Games
Page Count: 239
Call Number: DH 1 DDG

Title: Dungeons Master's Guide
Game: Dungeons and Dragons
Edition: Fourth Edition
Author: James Wyatt
Genre: Fantasy
Purpose: Game Master Guide
Publisher: Wizards of the Coast
Page Count: 219
Call Number: D&D 4 DMG

Title: Forgotten Realms Campaign Guide
Game: Dungeons and Dragons
Edition: Fourth Edition
Author: Bruce R. Cordell, Ed Greenwood, Chris Sims
Genre: Fantasy
Purpose: Campaign Setting
Publisher: Wizards of the Coast
Page Count: 287
Call Number: D&D 4 FRCG

Title: The Inquisitor's Handbook
Game: Dark Heresy
Edition: First Edition
Author: Alan Bligh, Owen Barnes, John French
Purpose: Equipment Guide
Genre: Science Fiction
Publisher: Black Industries
Page Count: 248
Call Number: DH 1 IH

Title: Martial Power
Game: Dungeons and Dragons
Edition: Fourth Edition
Author: Rob Heinsoo, David Noonan, Robert J. Schwab
Genre: Fantasy
Purpose: Class Guide
Publisher: Wizards of the Coast
Page Count: 150
Call Number: D&D 4 MP

Title: Monster Manual
Game: Dungeons and Dragons
Edition: Fourth Edition

Author: Mike Mearls, Stephen Schubert, James Wyatt
Genre: Fantasy
Purpose: Monster Book
Publisher: Wizards of the Coast
Page Count: 287
Call Number: D&D 4 MM

Title: Paths of the Damned: Ashes of Middenhiem
Game: WFRP
Edition: Second Edition
Author: Graeme Davis
Genre: Fantasy
Purpose: Adventure
Publisher: Black Industries
Page Count: 94
Call Number: WFRP 2 AM

Title: Player's Handbook
Game: Dungeons and Dragons
Edition: Fourth Edition
Author: Rob Heinsoo, Andy Collins, James Wyatt
Genre: Fantasy
Purpose: Player's Guide
Publisher: Wizards of the Coast
Page Count: 316
Call Number: D&D 4 PHB

Title: The Thousand Thrones
Game: Warhammer Fantasy Roleplay
Edition: Second Edition
Author: Simon Crowe, Adam Flynn, Kevin Hamilton, Jude Hornborg, Nathan Long
Genre: Fantasy
Purpose: Adventure Anthology
Publisher: Black Industries
Page Count: 255
Call Number: WFRP 2 TT

Title: Way of the Scorpion
Game: Legend of the Five Rings
Edition: First Edition
Author: John Wick
Genre: Fantasy
Purpose: Faction Guide
Publisher: Alderac Entertainment Group
Page Count: 115
Call Number: L5R 1 WOS